Claims

1. - 39. (canceled)

40.   (previously presented) A method of inducing senescence of a cell, comprising altering the level of a nucleostemin polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 6, thereby inducing senescence of the cell.

41.   (original) The method of claim 40, wherein altering the level of the nucleostemin polypeptide comprises increasing the level of the polypeptide.

42.   (original) The method of claim 40, wherein altering the level of the nucleostemin polypeptide comprises decreasing the level of the polypeptide.

43.   (original) The method of claim 40, wherein the nucleostemin polypeptide comprises an amino acid sequence set forth as SEQ ID NO: 6.

44.   (original) The method of claim 40, wherein the nucleostemin polypeptide comprises an amino acid sequence set forth as SEQ ID NO: 4.

45.   (original) The method of claim 40, wherein the nucleostemin polypeptide comprises an amino acid sequence set forth as SEQ ID NO: 2.

46.   (original) The method of claim 40, wherein the nucleostemin polypeptide comprises an amino acid sequence set forth as SEQ ID NO: 10.

47.   (original) The method of claim 40, wherein the cell is a tumor cell.

48.   (original) The method of clam 40, wherein the cell is a stem cell.

49.   (original) The method of claim 40, wherein the cell is *in vitro*.

50.   (original) The method of claim 40, wherein the cell is *in vivo*.

51.   (previously presented) A method of inducing senescence of a tumor cell in a subject, comprising administering to the subject a therapeutically effective amount of an agent that alters the level of a nucleostemin polypeptide comprising an amino acid sequence at least 80% identical to SEQ ID NO: 6, thereby inducing senescence of the tumor cell in the subject.

52.   (original) The method of claim 51, wherein the agent is a small inhibitory RNA that specifically binds a polynucleotide encoding the nucleostemin polypeptide.

53.   (original) The method of claim 51, wherein the agent is a polynucleotide encoding a nucleostemin polypeptide.

54.   (original) The method of claim 51, wherein the agent is a p53.

55.   (canceled)

56.   (previously presented) The method of claim 46, wherein the cell is a tumor cell.

57.   (previously presented) The method of claim 46, wherein the cell is *in vitro*.

58.   (previously presented) The method of claim 46, wherein the cell is *in vivo*.

59.   (previously presented) The method of claim 46, wherein altering the level of the nucleostemin polypeptide comprises increasing transcription of a nucleic acid sequence encoding the nucleostemin polypeptide.

60.   (previously presented) The method of claim 46, wherein altering the level of the nucleostemin polypeptide comprises altering the amount of the polypeptide bound to p53.

61.   (previously presented) The method of claim 46, wherein altering the level of the nucleostemin polypeptide comprises introducing into the cell a small inhibitory RNA that specifically binds a polynucleotide encoding the nucleostemin polypeptide.

62.   (previously presented) The method of claim 46, wherein the cell is a stem cell.

63   (canceled)

64.   (previously presented) The method of claim 40, wherein altering the level of the nucleostemin polypeptide comprises increasing transcription of a nucleic acid sequence encoding the nucleostemin polypeptide.

65.   (previously presented) The method of claim 40, wherein altering the level of the nucleostemin polypeptide comprises altering the amount of the polypeptide bound to p53.

66.   (previously presented) The method of claim 40, wherein altering the level of the nucleostemin polypeptide comprises introducing into the cell a small inhibitory RNA that specifically binds a polynucleotide encoding the nucleostemin polypeptide.